

In the Claims:

1. - 26.       Cancelled

27.   (New) A method for the treatment or prevention of cardiac insufficiency, myocardial infarct and/or angina pectoris, which method comprises administering to a patient at least one fumaric acid derivative selected from the group consisting of dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoalkyl ester salts, fumaric acid monoamides, monoamido fumaric acid salts, fumaric acid diamides, monoalkyl monoamido fumarates, carbocyclic oligomers of these compounds, oxacarbocyclic oligomers of these compounds, and mixtures of the foregoing.

28.   (New) The method according to claim 27 comprising administering said at least one fumaric acid derivative to treat or prevent left ventricular insufficiency.

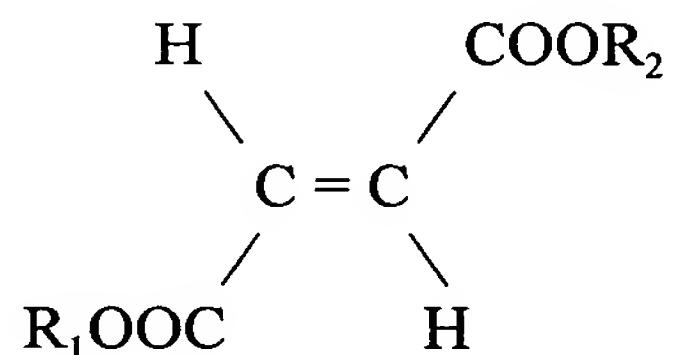
29.   (New) A method for the treatment of asthma and chronic obstructive pulmonary diseases, which method comprises administering to a patient at least one fumaric acid derivative selected from the group consisting of dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoalkyl ester salts, fumaric acid monoamides, monoamido fumaric acid salts, fumaric acid diamides, monoalkyl monoamido fumarates, carbocyclic oligomers of these compounds, oxacarbocyclic oligomers of these compounds, and mixtures of the foregoing.

30.   (New) The method according to claim 29 comprising administering said at least one fumaric acid derivative to treat (i) asthma caused by allergies, infections, analgesics, job conditions or physical effort, (ii) mixed forms of asthma, (iii) asthma cardiale, or (iv) chronic obstructive pulmonary disease.

31.   (New) The method according to claim 29 comprising also administering a glucocorticoid to the patient.

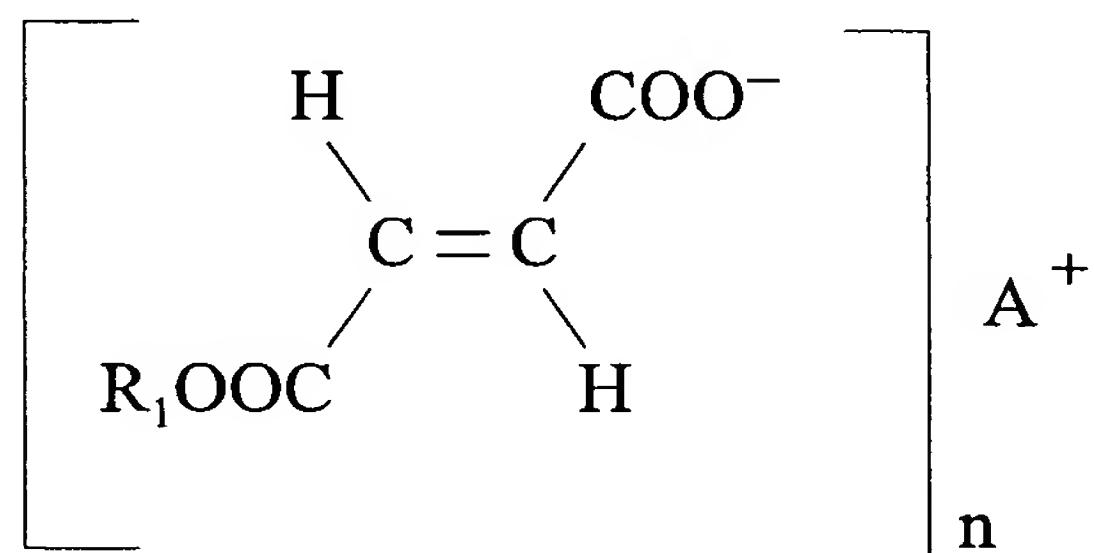
32. (New) The method according to claim 31 wherein the glucocorticoid being administered is selected from the group consisting of dexamethasone, cortisone, hydrocortisone, prednisolone, prednisone, methylprednisolone, fluocortolone, triamcinolone, beclomethasone, budenoside, flunisonide, fluticasone, betamethasone, and pharmaceutically acceptable salts and derivatives thereof.

33. (New) The method according to any of claims 27, 29 or 31 wherein the fumaric acid derivative is selected from one or more fumaric acid dialkyl esters of the formula (I)



wherein R<sub>1</sub> and R<sub>2</sub> which may be the same or different independently represent a linear, branched or cyclic, saturated or unsaturated C<sub>1-24</sub> alkyl radical or a C<sub>5-20</sub> aryl radical and wherein said radicals may optionally be substituted with halogen (F, Cl, Br, I), hydroxy, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkyl, nitro or cyano.

34. (New) The method according to any of claims 27, 29 or 31 wherein the fumaric acid derivative is selected from one or more fumaric acid monoalkyl esters of the formula (II)



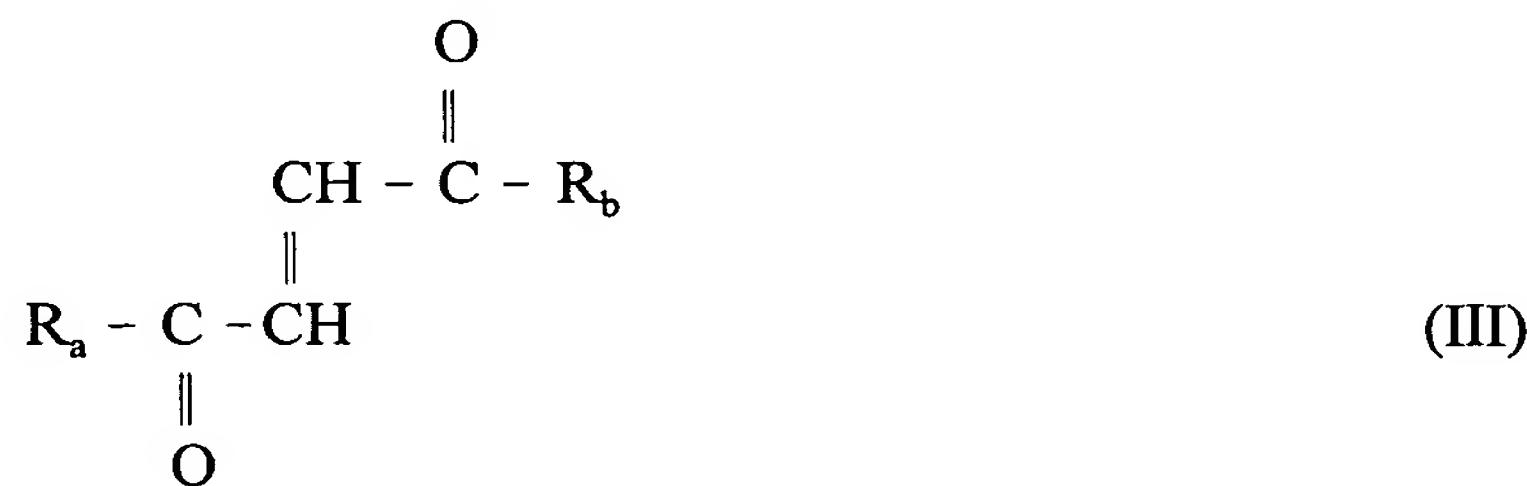
wherein

- $R_1$  represents a linear, branched or cyclic, saturated or unsaturated  $C_{1-24}$  alkyl radical or a  $C_{5-20}$  aryl radical;
- A represents hydrogen, an alkaline or alkaline earth metal cation or a physiologically acceptable transition metal cation, preferably selected from  $Li^+$ ,  $Na^+$ ,  $K^+$ ,  $Mg^{2+}$ ,  $Ca^{2+}$ ,  $Zn^{2+}$ ,  $Fe^{2+}$ , and  $Mn^{2+}$  and
- n equals 1 or 2 and corresponds to the valence of A.

35. (New) The method according to any of claims 27, 29, or 31 wherein the fumaric acid derivative is selected from one or more compounds of the formulae (I) and (II) and mixtures thereof.

36. (New) The method according to claim 35 wherein the fumaric acid derivative is selected from the group consisting of fumaric acid dimethyl ester, fumaric acid diethyl ester, fumaric acid methyl ethyl ester, methyl hydrogen fumarate, ethyl hydrogen fumarate, calcium methyl fumarate, calcium ethyl fumarate, magnesium methyl fumarate, magnesium ethyl fumarate, zinc methyl fumarate, zinc ethyl fumarate, iron methyl fumarate, iron ethyl fumarate and mixtures thereof.

37. (New) The method according to any of claims 27, 29, or 31 wherein the fumaric acid derivative is selected from one or more fumaric acid amides of the general formula III



wherein

$R_a$  represents  $OR_3$  or a D- or L-amino acid radical  $-NH-CHR_4-COOH$  bonded via an amide bond, wherein  $R_3$  is hydrogen, a straight-chain or branched, optionally substituted  $C_{1-24}$

alkyl radical, a phenyl radical or a C<sub>6-10</sub> aralkyl radical and R<sub>4</sub> is a side chain of a natural or synthetic amino acid; and

R<sub>b</sub> represents a D- or L-amino acid radical -NH-CHR<sub>s</sub>-COOH bonded via an amide bond, wherein R<sub>s</sub> is a side chain of a natural or synthetic amino acid which may be the same as or different from R<sub>4</sub> or a peptide radical with 2 to 100 amino acids bonded via an amide bond, which amino acids may be the same or different.

38. (New) The method according to claim 37, wherein the side chain of a natural or synthetic amino acid is selected from the group consisting of the side chains of Ala, Val, Leu, Ile, Trp, Phe, Met, Tyr, Thr, Cys, Asn, Gln, Asp, Glu, Lys, Arg, His, Citrulline, Hcy, Hse, Hyp, Hyl, Orn, Sar, and Me-Gly.

39. (New) The method according to claim 37, wherein the side chain of a natural or synthetic amino acid is selected from the group consisting of the side chains of Gly, Ala, Val, Ile, Leu, and Me Gly.

40. (New) The method according to claim 37 wherein R<sub>a</sub> is the radical -OR<sub>3</sub> and R<sub>b</sub> is an L-amino acid radical -NH-CHR<sub>s</sub>-COOH or a peptide radical, R<sub>s</sub> being as defined in claim 37.

41. (New) The method according to any of claims 27, 29, or 31 wherein the fumaric acid derivative is a carbocyclic oligomer consisting of 2 to 10 fumaric acid moieties as repetitive moieties, wherein the fumaric acid moieties are derived from monomers selected from the group consisting of fumaric acid, dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoamides, fumaric acid diamides, monoalkyl monoamido fumarates and salts and mixtures thereof.

42. (New) The method according to any of claims 27, 28, 29, 30, 31, or 32 wherein the alkyl radicals having 1 to 24 carbon atoms are selected from the group consisting of methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, t-butyl, pentyl, cyclopentyl, 2-ethyl hexyl, hexyl, cyclohexyl,

heptyl, cycloheptyl, octyl, vinyl, allyl, 2-hydroxy ethyl, 2 or 3 hydroxy propyl, 2,3-dihydroxypropyl, 2-methoxy ethyl, methoxy methyl, 2- methoxy propyl, 3-methoxy propyl and 2,3-dimethoxy propyl.

43. (New) The method according to Claim 42 wherein said alkyl radicals are methyl or ethyl.

44. (New) The method according to any of claims 27, 28, 29, 30, 31, or 32 wherein the drug is administered in a form suitable for oral, rectal, transdermal, dermal, ophthalmological, nasal, pulmonary or parenteral application.

45. (New) The method according to claim 44 wherein the drug is provided in the form of tablets, coated tablets, capsules, granulate, solutions for drinking, liposomes, nano particles, nano-capsules, micro-capsules, micro-tablets, pellets or powders and in the form of granules filled in capsules or sachets, micro-tablets filled in capsules or sachets, pellets filled in capsules or sachets, nano-particles filled in capsules or sachets or powder filled in capsules or sachets.

46. (New) The method according to claim 45, wherein the drug is present in the form of nano particles, pellets or micro-tablets which may optionally be filled in sachets or capsules.

47. (New) The method according to claim 45 wherein the solid oral dosage forms are provided with an enteric coating.

48. (New) The method according to claim 46 wherein the solid oral dosage forms are provided with an enteric coating.

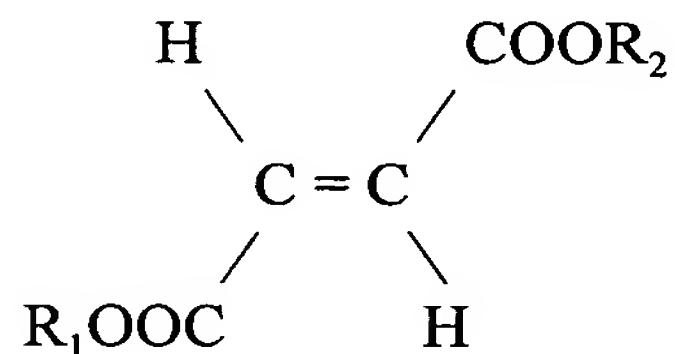
49. (New) The method according to any of claims 27, 28, 29, 30, 31, or 32 wherein the drug contains an amount of fumaric acid derivative(s) corresponding to 1 to 500 mg of fumaric acid.

50. (New) A method of inhibiting PDGF induced thymidine uptake of bronchial smooth muscle cells, which method includes the step of cultivating the cells in the presence of an amount

of a fumaric acid derivative sufficient to inhibit said uptake, which fumaric acid derivative is selected from the group consisting of dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoalkyl ester salts, fumaric acid monoamides, monoamido fumaric acid salts, fumaric acid diamides, monoalkyl monoamido fumarates, carbocyclic oligomers of these compounds, oxacarbocyclic oligomers of these compounds, and mixtures of the foregoing.

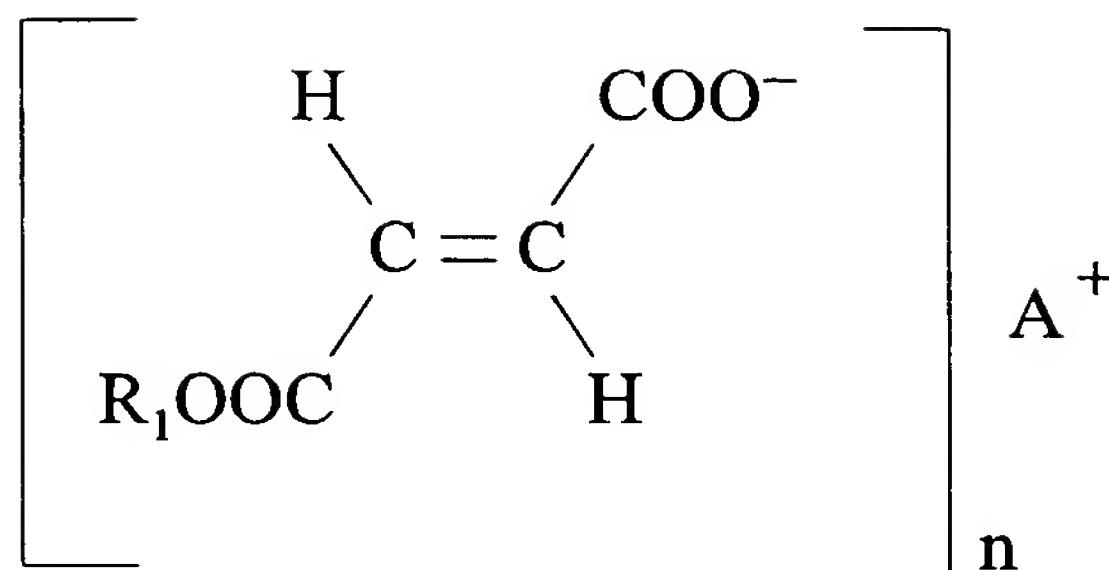
51. (New) A method of inhibiting bronchial smooth muscle cell proliferation, which method includes the step of bringing bronchial smooth muscle cells directly or indirectly in contact with a proliferation inhibiting amount of a fumaric acid derivative selected from the group consisting of dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoalkyl ester salts, fumaric acid monoamides, monoamido fumaric acid salts, fumaric acid diamides, monoalkyl monoamido fumarates, carbocyclic oligomers of these compounds, oxacarbocyclic oligomers of these compounds, and mixtures of the foregoing.

52. (New) The method of any of claims 50 or 51, wherein the fumaric acid derivative is selected from one or more fumaric acid dialkyl esters of the formula I



wherein R<sub>1</sub> and R<sub>2</sub> which may be the same or different independently represent a linear, branched or cyclic, saturated or unsaturated C<sub>1-24</sub> alkyl radical or a C<sub>5-20</sub> aryl radical and wherein said radicals may optionally be substituted with halogen (F, Cl, Br, I), hydroxy, C<sub>1-4</sub> alkoxy, C<sub>1-4</sub> alkyl, nitro or cyano.

53. (New) The method of any of claims 50 or 51, wherein the fumaric acid derivative is selected from one or more fumaric acid monoalkyl esters of the formula II

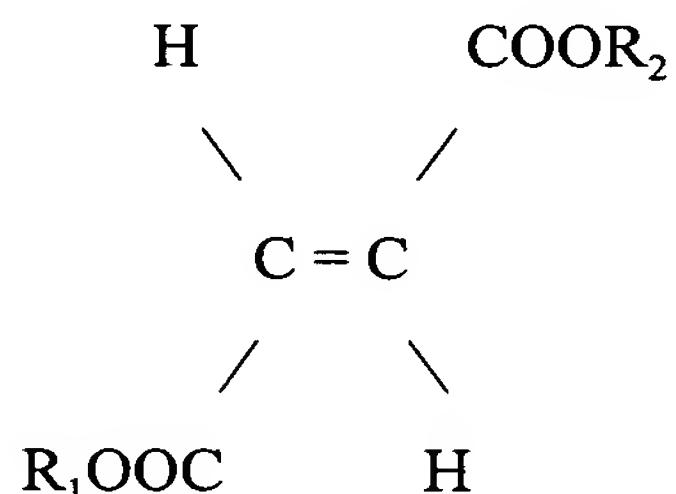


wherein

- $\text{R}_1$  represents a linear, branched or cyclic, saturated or unsaturated  $\text{C}_{1-24}$  alkyl radical or a  $\text{C}_{5-20}$  aryl radical;
- $\text{A}$  represents hydrogen, an alkaline or alkaline earth metal cation or a physiologically acceptable transition metal cation, preferably selected from  $\text{Li}^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Fe}^{2+}$ , and  $\text{Mn}^{2+}$  and
- $n$  equals 1 or 2 and corresponds to the valence of  $\text{A}$ .

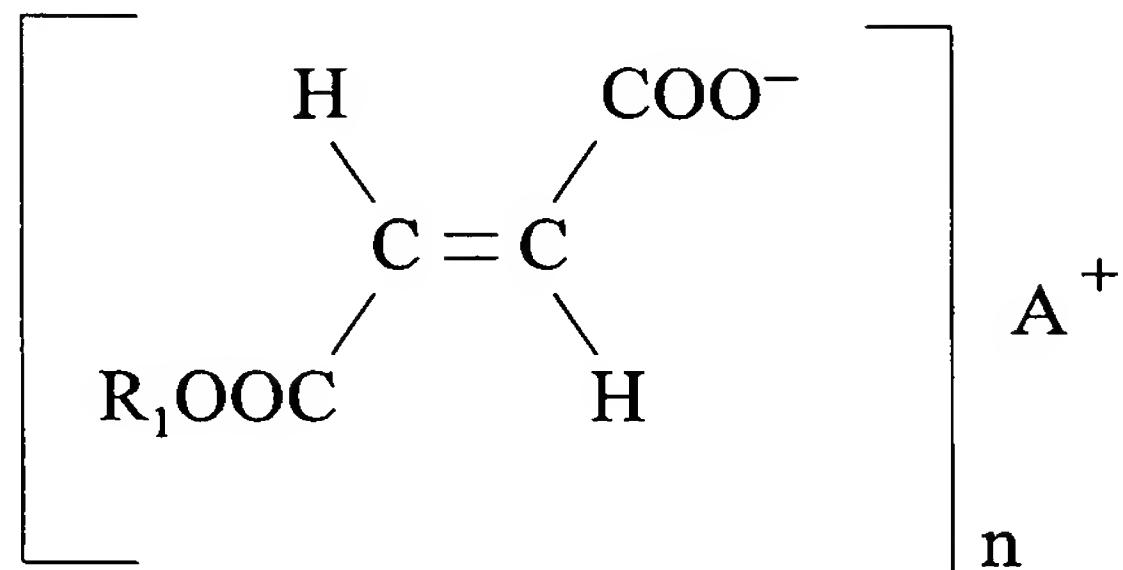
54. (New) The method of any of claims 50 or 51, wherein the fumaric acid derivative is a mixture of:

- I) one or more fumaric acid dialkyl esters of the formula



wherein  $\text{R}_1$  and  $\text{R}_2$  which may be the same or different independently represent a linear, branched or cyclic, saturated or unsaturated  $\text{C}_{1-24}$  alkyl radical or a  $\text{C}_{5-20}$  aryl radical and wherein said radicals may optionally be substituted with halogen (F, Cl, Br, I), hydroxy,  $\text{C}_{1-4}$  alkoxy,  $\text{C}_{1-4}$  alkyl, nitro or cyano; and

II) one or more fumaric acid monoalkyl esters of the formula



wherein

- $\text{R}_1$  represents a linear, branched or cyclic, saturated or unsaturated  $\text{C}_{1-24}$  alkyl radical or a  $\text{C}_{5-20}$  aryl radical;
- $\text{A}$  represents hydrogen, an alkaline or alkaline earth metal cation or a physiologically acceptable transition metal cation, preferably selected from  $\text{Li}^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Fe}^{2+}$ , and  $\text{Mn}^{2+}$  and
- $n$  equals 1 or 2 and corresponds to the valence of  $\text{A}$ .

55. (New) The method of claim 51, which is carried out *in vivo*, by administering the fumaric acid derivative to a subject.

56. (New) The method of claim 55, wherein said administration is an oral administration.

57. (New) The method of inhibiting bronchial smooth muscle cell proliferation, which method comprises treating the cells with a fumaric acid derivative selected from the group consisting of dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoalkyl ester salts, fumaric acid monoamides, monoamido fumaric acid salts, fumaric acid diamides, monoalkyl monoamido fumarates, carbocyclic oligomers of these compounds, oxacarbocyclic oligomers of these compounds, and mixtures of the foregoing.

58. (New) The method of inhibiting PDGF induced STAT1 activation, which method comprises treating the cells with a fumaric acid derivative selected from the group consisting of dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoalkyl ester salts, fumaric acid monoamides, monoamido fumaric acid salts, fumaric acid diamides, monoalkyl monoamido fumarates, carbocyclic oligomers of these compounds, oxacarbocyclic oligomers of these compounds, and mixtures of the foregoing.
59. (New) A method of preparing a drug for treatment or prevention of cardiac insufficiency, myocardial infarct and/or angina pectoris, which method comprises formulating at least one fumaric acid derivative selected from the group consisting of dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoalkyl ester salts, fumaric acid monoamides, monoamido fumaric acid salts, fumaric acid diamides, monoalkyl monoamido fumarates, carbocyclic oligomers of these compounds, oxacarbocyclic oligomers of these compounds, and mixtures of the foregoing into a form suitable for administration as a drug for treating or preventing cardiac insufficiency, myocardial infarct and/or angina pectoris.
60. (New) The method according to claim 59 comprising formulating said at least one fumaric acid derivative into a form for treating or preventing left ventricular insufficiency.
61. (New) A method of preparing a drug for treatment of asthma and chronic obstructive pulmonary diseases, which method comprises formulating at least one fumaric acid derivative selected from the group consisting of dialkyl fumarates, monoalkyl hydrogen fumarates, fumaric acid monoalkyl ester salts, fumaric acid monoamides, monoamido fumaric acid salts, fumaric acid diamides, monoalkyl monoamido fumarates, carbocyclic oligomers of these compounds, oxacarbocyclic oligomers of these compounds, and mixtures of the foregoing into a form suitable for treating asthma and chronic obstructive pulmonary diseases.
62. (New) The method according to claim 61 comprising formulating said at least one fumaric acid derivative into a form for treating (i) asthma caused by allergies, infections, analgesics, job conditions or physical effort, (ii) mixed forms of asthma, (iii) asthma cardiale, or (iv) chronic obstructive pulmonary disease.

63. (New) The method according to claim 61 comprising formulating a combination of said at least one fumaric acid derivative and a glucocorticoid into said form.
64. (New) The method according to claim 63 comprising formulating a combination of said at least one fumaric acid derivative and a glucocorticoid selected from the group consisting of dexamethasone, cortisone, hydrocortisone, prednisolone, prednisone, methylprednisolone, fluocortolone, triamcinolone, beclomethasone, budesonide, flunisolide, fluticasone, betamethasone, and pharmaceutically acceptable salts and derivatives thereof into said form.